

REMARKS

This is a full and complete response to the Office action dated March 27, 2006.

Disposition of the Claims:

Claims 11-14, and 17-28 are currently pending in the application. The subject matter of claims 15 and 16, which are now canceled, has been introduced into claim 11. New claim 28 has been added and is supported in the Application in paragraphs [011] and [92].

All comments and remarks of record are herein incorporated by reference. Applicant respectfully traverses these rejections and all comments made in the Office action. Nevertheless, in an effort to expedite prosecution, Applicant provides the following remarks regarding the cited references.

35 USC §112:

The Examiner rejected claim 26 under 35 USC §112, second paragraph, as being indefinite for not providing antecedent basis for “sheets.” Applicants have amended claim 26 to depend from claim 25 as suggested by the Examiner.

35 USC §102(b):

Claims 11-27 are rejected under 35 USC §102(b) as being anticipated by **Nakamura et al.** (US 4,468,453). Applicants respectfully traverse this rejection.

The Examiner alleged that the cited reference teaches block copolymers of the formula $(A-B)_n-A_m$ where block A and B polymers include polyisoprene and polybutadiene. The Examiner further alleges that the two block polymers may be combined so as to be present in a ratio of 80:20 to 20:80.

The Applicants respectfully assert that the **Nakamura et al.** does not disclose or suggest the claimed invention. Anticipation under §102 can be found only if a reference

shows exactly what is claimed. Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (CAFC 1985).

Nakamura et al. discloses a phototoughening composition comprising

- (a) at least one polymer selected from a group consisting of homopolymers of a conjugated diene monomer, copolymers of a conjugated diene monomer and a monoene monomer of the formula $(A-B)_n-A_m$,
- (b) at least one ethylenically unsaturated compound, and
- (c) at least one photopolymerization initiator. See Nakamura et al., column 3, lines 40-60.

However, Applicants respectfully assert that this does not disclose the claimed invention. **Nakamura et al.** does not disclose a thermoplastic elastomeric block copolymer of the formula A-C-A or $(A-C)_nX$ wherein each C independently represents a substantially random block (I/B) of predominantly isoprene and butadiene in a mutual weight ratio in the range of from 20/80 to 80/20. The block copolymer of **Nakamura et al.** contains no blocks which are mixed isoprene and butadiene. Blocks A and B of **Nakamura et al.** each contain only one type of monomer.

Nakamura et al., in column 4, lines 27-35, mention that suitable block copolymers can be polystyrene-polybutadiene, polystyrene-polyisoprene, poly(α -methylstyrene)-polybutadiene, poly(α -methylstyrene)-polyisoprene, polystyrene-polybutadiene-polystyrene (S-B-S), polystyrene-polyisoprene-polystyrene (S-I-S), polystyrene-polybutadiene-polystyrene-polybutadiene and polyvinyltoluene-polybutadiene-polyvinyltoluene. As can be seen from these suggested examples of block copolymers, none of the block copolymers have a block which is a substantially random block (I/B) of predominantly isoprene and butadiene. Each block is only one type of monomer.

Furthermore, in the Examples of **Nakamura et al.**, each block copolymer has no block which is a substantially random block of predominantly isoprene and butadiene. For example, in Example 2 of **Nakamura et al.**, the block copolymer is polystyrene-polyisoprene-polystyrene (S-I-S). As discussed in paragraph [0008] of the current

application, the use of such block copolymers as S-I-S or S-B-S alone or mixed together result in certain disadvantages, such as bad transparency. Such block copolymers do not disclose the current invention because there is no block which is a substantially random block of predominantly isoprene and butadiene according to the current claims. Therefore, Applicants respectfully request that the 35 USC §102 rejection be withdrawn.

Remarks Regarding 35 U.S.C. §103(a)

Claims 11-23 stand rejected under 35 USC §103(a) as being unpatentable over **Nakamura et al.** (EP 0525206) in view of **De Keyzer et al.** (WO 02/057386).

The Examiner alleges that the '206 reference teaches a photosensitive elastomer composition comprising a thermoplastic block copolymer composed of a monovinyl aromatic hydrocarbon polymer block, an ethylenically unsaturated compound component and a photopolymerization initiator, which may be used in flexographic printing plates. The Examiner also alleges that **De Keyzer et al.** discloses an adhesive composition which may be used in printing plates comprising one or more styrenic block copolymers in the general formula (A-C)_n – X(2), where A independently is a polymer block of an aromatic vinyl compound and C is a mixed polymer block (B/I) of butadiene (B) and isoprene (I) in a weight ratio of 30:70 to 70:30. The Examiner takes the position that it would have been obvious for one of ordinary skill in the art to use the isoprene/butadiene ratio and the molecular weight ranges shown in **De Keyzer et al.** for the elastomer of the '206 reference.

Applicants respectfully traverse this rejection. According to §103, in order to establish a *prima facie* case of obviousness, there must be (1) some suggestion or motivation to modify the references, (2) reasonable expectation of success and (3) the prior art reference must teach or suggest all of the claim limitations. See MPEP §2143. Applicants respectfully submit that the cited references, either alone or in combination, do not disclose or suggest the claimed invention.

Amended claim 11 recites that the mutual weight ratio between isoprene and butadiene in the I/B blocks is in the range according to the equation:

$$-30 < 40 + V - I < 30$$

wherein I is the isoprene content in the I/B block and “V” is the molar ratio in percent of 1,2 or 3,4 addition polymerization in the I/B blocks. Therefore, 1,2 or 3,4 addition polymerization content and/or isoprene content can be determined according to the provided equation. This indicates that each factor is interrelated with the other in a critical fashion for providing a photopolymerizable composition according to the claimed invention.

This ratio is not disclosed or suggested by the ‘206 reference nor **De Keyzer et al.** It is disclosed in **De Keyzer et al.** that the block copolymers contain 1,2-vinyl bonds and/or 3,4-vinyl bonds in a proportion of at most 15 wt%, based on the weight of conjugated diene. See De Keyzer et al., page 5, lines 27-30. Furthermore, the reference discloses a weight ratio B:I of butadiene (B) to isoprene (I) in a weight ratio of 30:70 to 70:30. **De Keyzer et al.**, page 4, lines 13-15. However, nowhere does **De Keyzer et al.** disclose or suggest that the ratio between isoprene and butadiene should be according to the above mentioned equation. Further, **De Keyzer et al.** does not disclose the combination or interrelation between 1,2 or 3,4 addition polymerization content and isoprene content.

The criticality of the claimed equation can be seen in Table 2 on pages 12-13 of the current application, wherein the inventive examples S(I/B)S1, S(I/B)S2, and S(I/B)S3 all fall within the ranges governed by the claimed equation. However, the comparative examples SIS1, SIS2, SIS3, SBS1, SBS2, Liq SI, Liq PB all fall outside the ranges of the claimed equation. Therefore, Applicants respectfully request that the 35 USC §103(a) rejection be withdrawn.

The applicants have also added new claim 28, which recites that the block copolymer is mixed with either polystyrene-polyisoprene-polystyrene (SIS) and/or polystyrene-polybutadiene-polystyrene (SBS) type block copolymers. As indicated in paragraph [0008] of the application, when block copolymers SIS or SBS are used alone or in combination, certain disadvantages arise, such as bad transparency. See Application, paragraphs [0008] and [0092]. However, as shown in table 7 of the

Examples in the application, when S(I/B)S is employed with SIS and SBS, surprisingly, excellent transparency is preserved. See Table 7, paragraph [0092] -[0093]; see also Application, paragraph [011]. Therefore, Applicants submit that such claims show unexpected results and are, accordingly, non-obvious in view of the cited references.

Additionally, the Examiner alleged that the limitations of claim 18 were met because acrylate and methacrylate contain the same unsaturated group as butylacrylate. However, Applicants respectfully assert that the cited references do not disclose the photopolymerizable ethylenically unsaturated compounds recited therein.

Furthermore, claims 24-27 stand rejected under 35 USC §103(a) as being unpatentable over **Nakamura et al.** (EP 0525206) in view of **De Keyzer et al.** (WO 02/057386), and further in view of **Gruetzmacher et al.** (EP 0084851). However, even with the additional reference **Gruetzmacher et al.**, for similar reasons discussed above, the claimed invention is not disclosed or suggested. Therefore, Applicants respectfully request that the 35 USC §103 rejection applied to claim 24-27 be withdrawn.

Conclusion

Having addressed all issues set out in the Office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,
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